

ABSTRACT OF THE DISCLOSURE

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An instrument is described that permits high-speed, high-resolution mapping of thicknesses of layers on patterned semiconductor wafers. The instrument consists of one or more spectrometers that image in one spatial dimension, such as a two-dimensional CCD imager with one axis of the imager measuring spectral data and the other axis measuring spatial data. Spectral reflectance of the patterned wafer under test is obtained by passing the wafer under the imaging spectrometer(s) and taking sequential one-dimensional reflectance images. The resulting spectral reflectance map can then be analyzed at discrete locations to determine the thicknesses of the layers at those locations.

009070 6727960